

Chapter 6.1

The Mandena *Dina*, a Potential Tool at the Local Level for Sustainable Management of Renewable Natural Resources

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Abstract

This chapter describes a useful tool for the management of the natural resources of the Mandena area, and outlines the process for the signing of a 2002 agreement (*dina*) between the local communities that use the resources, a mining company that obtained a legal permit for mineral exploitation, and the Malagasy Government (Ministère de l'Environnement et des Eaux et Forêts), which has prerogative rights. The Mandena *dina* was based on a few years of experience, the available literature, and similar projects, and can be revised or adapted as needed. Herein this three-phase project is described and the following specific details are provided: the preparation of the joint management construct; the negotiation, plans, and agreements; and the process of learning through action. This chapter examines the process for implementing the Mandena *dina*, its advances and limits, and the questions it raises regarding the intended goals.

Résumé

Le *Dina* de Mandena, un outil potentiel au niveau local pour la gestion durable des ressources naturelles renouvelables. Ce chapitre décrit un outil utile et testé pour gérer les ressources naturelles de la région de Mandena et détaille les étapes ayant abouti à la signature en 2002 d'un accord (*dina*) entre les communautés locales utilisant les ressources naturelles, une compagnie minière ayant obtenu l'autorisation légale de l'exploitation minière et le Gouvernement de Madagascar (Ministère de l'Environnement et des Eaux et Forêts) qui a des droits sur la zone. Le *dina* de Mandena a été mis en place avec une approche qui peut être révisée ou adaptée et est basée sur les expériences et idées tirées de la littérature et de projets similaires. Le projet de trois phases est décrit ici avec des détails spécifiques portant d'une part sur la préparation d'une gestion

commune, d'autre part sur la négociation, les projets et les accords, et enfin les leçons apprises au cours du processus. Ce chapitre se penche sur le processus de mise en place du *dina* de Mandena, ses progrès et ses limites et les questions soulevées portant sur les objectifs recherchés.

Introduction

In Madagascar, which is among the poorest countries in the world and is characterized by reduced State intervention, the decentralized management of renewable natural resources has been proposed as an important means for reversing degradation and poverty trends (POLFOR/MIRAY 1998). This has led the Malagasy Government to implement a policy that transfers management of natural resources to local communities through formal procedures known as "Gestion Locale Sécurisée (GELOSE)" (Secure Local Management) and "Gestion Contractuelle des Forêts (GCF)" (Contractual Forest Management). Although this project is still in the preliminary stage, and specific cases of transfer to local communities have met with mixed success, some initial findings and points on the process can be made (Fisher 1995):

1. It is recognized as counterproductive, in terms of maintaining and managing natural resources, to deny the rights of local populations to manage the natural resources adjacent to where they live. State management has clearly failed to achieve the expected results, namely long-term forest productivity. However, there are sometimes impediments to implementing procedures and processes, for example, the tendencies of government and foreign agencies to decide on behalf of the local populations, the reluctance of local populations to fully participate, and the absence of any real incentive or tools needed to participate. At times, the gen-

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<p>Phase I: Preparing for collaborative management</p>	<ul style="list-style-type: none"> • Sharing information on the environmental and social program of the ilmenite project and gathering concerns (QMM); • Identifying and contacting stakeholders, and organizing the first meeting to facilitate the analysis of the ecological and social situation, and the analysis of management rights (Water & Forest, QMM, communes); • Defining together the natural resources units to be managed and the stakeholders involved (Water & Forest, QMM, communes); • Proposing a set of rules and procedures for preparing plans and agreements, including definite equitable considerations (Water & Forest, QMM, communes); • Initiating collaborative forestry activities: firebreaks and plantations (QMM).
<p>Phase II: Negotiating plans and agreements</p>	<ul style="list-style-type: none"> • Developing a common vision of the future desired for the natural resources at stake (Water & Forest, QMM, communes); • Negotiating land-use plans, agreements, and the <i>dina</i> (which requires clarification of what has to be done, by whom, and through what means), managing conflicts, clarifying zoning provisions, and sharing natural resource management duties, rights, and responsibilities between stakeholders (QMM); • Agreeing on the procedure followed to “institutionalize” joint management (Water & Forest, QMM, communes); • Formalizing the common vision adopted: joint management and signature.
<p>Phase III: Learning through Action</p>	<ul style="list-style-type: none"> • Legitimizing and disclosing the plans, agreements, initiatives, and organizations of collaborative management (COGE); • Applying and implementing plans, agreements, initiatives, and organizations (COGE); • If applicable, specifying the rights and responsibilities of stakeholders (COGE); • Gathering data and information on the results and processes based on the guidelines of the follow-up protocols (COGE); • Identifying the main factors impacting natural resources and stakeholders, and experimenting with innovations (QMM, COGE); • Organizing review meetings at regular intervals to evaluate the results obtained and the lessons learned; • If applicable, changing the plans, agreements, initiatives, and organizations (COGE).

Figure 1. Schematic diagram for the implementation of joint management.

eral culture and social behaviors are used to reach a consensus and avoid conflict at the expense of sustaining resources. Conversely, the fear certain players have of losing control of the resources and their responsibility can also interfere with the process.

2. In the field, long-term conservation interests and short-term sustainable development and economic needs are often conflicting issues. Management, as a conservation goal, cannot be achieved without satisfying the needs of the communities concerned, and making sure that the tools are available to everyone. This leads to a need for a transition phase of joint management or collaborative management.

In Madagascar in general, and in Tolagnaro in particular, the results obtained with the management transfer implemented through GELOSE reveal the extent to which many communities are not yet properly prepared to manage their renewable natural resources. Given the change from several decades of management by a centralized government to a peri-

od of near anarchy, it is not surprising that with the transfer of management to local communities (in Malagasy, known as the *fokonolona*) the process has met with some difficulties.

In this chapter, the cooperation at Mandena is outlined between the local communities using natural resources, a mining company having obtained a legal permit for mineral exploitation, and the Malagasy Government that has prerogative rights over all resources. The Mandena “joint management model” of *dina* is certainly not a unique case. What we are proposing here is an approach that can be revised or adapted, based on a few years of experience in Mandena, ideas drawn from the literature, and other similar projects. The innovation introduced here is to raise the question on the future of joint management. This chapter looks at the process for implementing the Mandena joint management system, its advances and limits, and the questions it raises regarding the intended goals. The results presented are divided into three main phases, which we describe here in a schematic fashion (Fig. 1).

Phase 1: Preparing for participation in joint management

Preparations consisted of presenting credible arguments for joint management of Mandena's renewable natural resources to all stakeholders: Circonscription de l'Environnement et des Eaux et Forêts de Tolagnaro (CIREEF) (Tolagnaro Environment, Water and Forest District), local authorities of the communes concerned, and villagers. Preliminary meetings were held between QIT Madagascar Minerals (QMM) and CIREEF on the merits of the joint management approach, and on the principles of partnership that could be established between the two parties. This briefing enabled CIREEF to take over the leadership for the subsequent phases.

Stakeholders to be identified

On the administrative level, the Mandena area is managed by the Ministry of the Environment, Water and Forests, represented in Tolagnaro by CIREEF. Moreover, on the territorial level, Mandena is divided into two communes: Ampasy-Nahampoana and Mandromondromotra. The areas of natural and planted forests in Mandena are traditionally used by villagers of these two communes to meet their household needs. As for the people who reside outside these two communes, access to the Mandena Forest has generally been open over the past few years.

It was also necessary to distinguish the groups with pre-existing rights from those who seek access to rights, and to know what these rights are. Once these groups were identified, a preparatory committee was set up to represent these different parties. Following considerable consultations and based on traditional customs, the following stakeholders were identified:

- The communes concerned, Ampasy-Nahampoana and Mandromondromotra, as the public territorial communities nearest the Mandena Forest, which are represented by mayors or officials elected by the community and in charge of promoting and coordinating economic, social, and cultural development. The individuals were primarily responsible for participating in the preparation of local development plans and implementing them;
- The local and regional forest administration (CIREEF), which, in the case of Mandena, is

both land owner and manager of the forest resources, and controls them;

- Civil society in both communes, represented by the user groups, formal village associations (e.g., associations of women, loggers, producers of different forest products and crafts), the communal development boards in charge of preparing the development plans, and the representatives of the elders and the lineage chiefs; and
- QMM, which holds a mining permit for the Mandena area and which has environmental commitments to the state and the region, which include, for example, the establishment of conservation zones.

Rights and responsibilities

A simple participatory analysis of the terms of resource management and land-use was conducted prior to the joint management using the principal of the "4 R's" or Roles, Responsibilities, Rights, and Revenues (Dubois 1998). This approach made it possible to describe and identify the causes of the permanent degradation of local natural resources. This analysis also helped to define, for each stakeholder, a fair distribution of responsibilities, management rights, and income and profits. The questions and issues encountered during visits to the resources at stake were raised. Moreover, ongoing consultations of the ilmenite mining project developed simple communication tools, which enabled a clearer perception by the villagers of the project. Using their language, and illustrations based on local culture, it was possible to convey the different project phases and their impact on natural resources. In return, comments from villagers and local authorities helped QMM to be aware of regional concerns surrounding the project. Following this phase, the stakeholders reached an agreement on the following points:

1. No stakeholder had successful prior experience that could be used as a reference for resource management.
2. The multiple points of view and respect for each party's rights could only be achieved with a joint management platform.
3. Care must be taken to control pressures put on the local natural resources by outsiders, in particular, the production of charcoal, that pose significant threats to Mandena's resources. The use of natural resources by local villagers also constitutes a threat, but to a lesser degree.

4. The sustainable management of these natural resources can only be achieved with the commitment of the local communities that use them, and the communes and the government forestry agency. The accelerated depletion of these resources may seriously compromise the region's sustainable development.

The challenge was getting the stakeholders to grasp the extent of the issues, their legal and customary rights over Mandena, and their resulting respective management responsibilities. The main idea was to convey through clear and concrete examples that rights and responsibilities go hand in hand (Dubois 1998). The previous situation was rather confusing with respect to who was responsible, and revealed a reluctance to accept responsibility for actions or management. Moreover, the "rights" of the various interests further complicated a clear interpretation of the situation, which sparked mistrust. Following the example of many environmental and rural development projects, QMM was selected to be solely responsible for managing Mandena's renewable natural resources on behalf of the community. This was contrary to QMM's mining vocation and the goals of regional self-development. The simple participatory analysis discussed above helped considerably to elucidate the underlying problems.

What resources should be jointly managed?

Since mining resources fall under the exclusive rights acquired by the company, they are not included in joint management. As mutually agreed, joint management concerns: residual fragments of native forest; a 230 ha conservation area; reed wetlands (*Lepironia mucronata*); various extensively used species, such as *Ravenala madagascariensis*; open environments dominated by shrub-like species, such as *Erica* and graminaceous plants; and *Eucalyptus* plantations in the Mandena area.

Need for the establishment of organization

Once in agreement on the principle, the multiplicity of points of view, concerns, experiences, and skills of each party made it clear that a form of joint management was needed. The various parties decided on a management structure in which the stakeholders could be represented. This structure took the form of a Management Committee (COGE), which was placed in charge of managing Mandena's natural resources based on sustainable management, equity,

accountability, and viability criteria. During that phase, activities were carried-out to reinforce the participation of all stakeholders, and to show the need for cooperation.

Phase 2: Negotiating Plans and Agreements

This stage was a prolonged two-year process, during which discussions focused on representation, joint management goals, and the contents of the management plans and regulations. The goal was to prepare a *dina*, a traditional set of rules used in a rural setting and put together by villagers to solve social or environmental problems, and which is recognized by Malagasy law. This phase was concluded by a renewable agreement co-signed by both Communes, the Circonscription de l'Environnement des Eaux et Forêts (CIREEF) of Tolagnaro, and QMM.

Equitable considerations

In forming the Management Committee or COGE, special attention was given to prevent family members from being represented, and to ensure all rightful holders are represented in the joint management structure. This concerns village communities, which are far from being homogenous. It is important to state that even while maintaining basic cohesion, all local communities have a plurality of values, interests, and matters of concern (Agrawal 1997), and it was therefore necessary to distinguish the groups within each community that needed to be represented. Once those groups were identified, a representation mechanism was put in place within the joint management structure, namely the COGE. Several points proposed by Cernea (1985) and Fisher (1995) helped to identify the groups: understanding the organizational structure of the community, including the make-up of the organizations and factional divisions; knowing the basic interest constructs, common and conflicting, within the community; and knowledge of functions of existing groups.

Land-use plan for natural resources

Besides identifying areas occupied by the different natural resources, the land-use plan is special in that it takes into account the different phases of the QMM mining project: construction, production, and rehabilitation. This plan, which makes the *dina* a physical reality, was negotiated based on villager

needs, considerations of preserving biodiversity, different QMM project phases, and associated costs. In the beginning, this plan was established using the simplest joint management form possible, with details coming once COGE had more specific information. This plan should evolve, based on the QMM project phase. It takes into account the different infrastructures put in place during the project construction and production phases, and during the rehabilitation of the sites following mining. The land-use plan includes aspects associated with conservation sites and various other developments.

Conservation site

A conservation site, which was proposed by QMM in its Project Environmental Management Plan, was accepted by all parties following negotiations. It covers 230 ha (see Vincelette *et al.* Chapter 2.4) and its delimitation was determined by the Management Committee. The site has a multi-use classification: ecotourism, beekeeping, nursery, and biological research; these activities generate revenue at fixed prices, which is then turned over to the COGE. Only plant cutting, and hunting activities are prohibited within the zone. The Management Committee allows, on an individual basis, villagers to exploit plants for food or medicinal purposes, in accordance with the principals of the *dina*. A control or enforcement group appointed by the COGE monitors and maintains the conservation site. Presumably in response to this joint management, indicators have revealed that the native forest is starting to regenerate.

This site is currently part of a national network of protected areas (SAPM), and villagers are trained to act as guides for local or international tourists. Their training is provided by QMM and its collaborators. Moreover, the villagers and the Management Committee receive periodic training in beekeeping from QMM staff members in collaboration with specialists, to improve their honey production capacity. The Management Committee also receives training on upgrading the conservation site in order to maximize revenues.

Other developments

In order to meet fuel and construction needs with local forest resources, parts of the native forest were not included in the conservation site. For

example, the exploitation of *Ravenala* leaves, wood for construction, and the cutting of exotic species is regulated in areas outside the conservation zone and fees are paid directly to the COGE. This committee decides on the expenditure of the incoming utilization fees, which fund actions associated with social and management aspects of the local communities. The Management Committee anticipates developing numerous rush wetlands, which are culturally and economically significant to the local communities (see Randriatafika *et al.* Chapter 6.6). The local communities are working together to identify an effective fire fighting strategy, as fires have been and continue to be a serious problem for the region. A project to eradicate the introduced, invasive tree *Melaleuca* in the wetlands is also being developed by the COGE. Finally, *Eucalyptus robusta* and *E. citriodora* plantations found on the periphery, which hold little value and are decaying due to fires and non-regulatory cutting, are among the resources that could potentially be exploited by various companies. They could become a source of income for the committee through commercial logging.

Phase 3: Learning Through Action

From absence of responsibility to sharing responsibilities

It was obvious that, in the beginning, joint management made certain stakeholders uneasy. The status of certain parties had to change from that of privileged decision-maker to partner. Attitudes also had to change from those of passive observers who did not need to answer to anyone, to players, required to responsibly manage their natural resources. In brief, sometimes stormy meetings were needed to set things straight.

Skills to be developed

For Mandena, the *dina* is currently applied and enforced by the COGE. Nevertheless, its application depends on the ability of village members of the COGE to be respected by other villagers and users. Following a preparatory phase to discuss the *dina* in the villages and larger urban settings, the village members were able to apply it with the support of the other stakeholders. This support was provided by QMM in the form of logistical aid, training, and equipment supplies.

Clear vision of goals

Is the COGE's status as an association, where different forces, villagers, local authorities, forest administration, and a private company, co-exist, really the most appropriate? The collective decision is that this style of management is appropriate for the interim, with a clearly defined aim to manage the natural resources of the Mandena area in a sustainable manner, and to rally stakeholders around this goal. In many ways, none of the parties involved can afford the permanent depletion of these vital resources.

The *dina*: a local management and follow-up tool

The advantage of the *dina* is that it has been known to the local population for generations, and is even recognized by the State under certain well-defined conditions. The weight of such an instrument in Madagascar cannot be disputed. It was initially based on the observance of traditional customs, and the decision of family, lineage elders, or other prominent locals to follow *fady*, or taboo, adhering to anything prohibited, ritualized or formalized in the *dina* by the village groups. The *fokonolona* is an expression of the village community life dating back before the colonization of Madagascar by the French. In the context of this construct, the village elders and other prominent individuals could decree the regulations (*dina*) and exercise a measure of local control over matters such as specific community projects and security. Through the application of the *dina*, the stakeholders, in particular the villagers, have an opportunity to gather more realistic information on the productivity, management, and state of the local resources. This allows them to plan for their future and the future of their descendants in a much more proactive way.

Self-evaluation

The Mandena joint management underwent a self-evaluation, which enabled all stakeholders to identify the main factors impacting natural resources and promoted positive interactions among the stakeholders. Management tools that are more within the villagers' reach were also put in place.

Issues of equity and balance

The equitable distribution of profits, duties, and costs has been discussed during meetings and negotiations, and within the COGE. When making decisions and within its activities, the COGE has made an effort not to create sources of injustice or imbalance within the communities, or to focus the negative effects of joint management on specific groups. The critical aspect is for the *dina* to be respected by all stakeholders. In order to achieve this, information has been distributed as widely as possible during frequent formal and informal meetings with representatives of the different parties. The organization of forest community work (plantations, clean-up of the native forest, building of firebreaks, etc.) has also made it possible to pass along information and distribute responsibilities and benefits equitably.

Participation, power, and leadership

How do we achieve a high level of participation among the various stakeholders at all stages of joint management? Without a significant level of participation, joint management goals cannot be reached since their implementation requires cooperation at all levels. This issue is partially settled given that everyone's interests are defended in a structure of delegated, elected, and representative management, which is what the Mandena COGE has become. This resembles the framework of means of participation developed by Arnstein (1969). But the most important factor appears to be the fact that, for the villagers, being in constant contact with QMM, and participating in common activities is the best way to be up to date on information, to avoid being cast aside, to express concerns, and to seize opportunities for income, jobs, or other advantages resulting from the company's presence at Mandena. This notion of converging interests was highlighted by Clad (1985).

Organization

The COGE is managed by an elected group headed by a villager who is appointed president.

Financial viability

Financial viability is the weakness of joint management. The main source of funding comes from QMM. The rest comes through the application of the *dina*, from duties paid by users of natural resources. How do we ensure that the management expenses for the Mandena area are covered by these duties? This question of financial autonomy is one of the most important issues of joint management.

Conclusion

Joint management is still in the initial stages. It is obvious that its success depends greatly on the ability of villagers to properly voice their opinions, and to be respected and ensure that their decisions are respected. This takes time and additional experiences, at least in part, through training. However, most importantly, it depends on social and economic incentives that village communities may enjoy through joint management.

It should be noted that the joint management of resources is a long learning process characterized by flexibility (Borrini *et al.* 2000). This should enable stakeholders to constantly readjust in order to adapt to changing situations (Borrini-Feyerabend 1996, 1997).

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